

October 06, 2020

Mike Cole  
EEG  
220 N Knoxville Avenue  
Russellville, AR 72801

RE: Project: CITY CORPORATION, L246-056825  
Pace Project No.: 60348941

Dear Mike Cole:

Enclosed are the analytical results for sample(s) received by the laboratory on September 22, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - SE Kansas

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Jamie Church  
jamie.church@pacelabs.com  
314-838-7223  
Project Manager

Enclosures

cc: Mike Cole, Environmental Enterprise Group, Inc.  
Stacy Ness, EEG  
Stacy Ness-copy invoice, EEG, Inc.



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
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## CERTIFICATIONS

Project: CITY CORPORATION, L246-056825

Pace Project No.: 60348941

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### **Pace Analytical Services Southeast Kansas**

808 West McKay, Frontenac, KS 66763

Arkansas Certification #: 18-016-0

Iowa Certification #: 118

Kansas/NELAP Certification #: E-10426

Louisiana Certification #: 03055

Oklahoma Certification #: 9935

Texas Certification #: T104704407

Utah Certification #: KS00021

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: CITY CORPORATION, L246-056825

Pace Project No.: 60348941

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Lab ID	Sample ID	Matrix	Date Collected	Date Received
60348941001	OUTFALL 001	Water	09/21/20 06:48	09/22/20 07:30

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### SAMPLE ANALYTE COUNT

Project: CITY CORPORATION, L246-056825

Pace Project No.: 60348941

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
60348941001	OUTFALL 001	EPA 821/R-02/013	MEB	1	PASI-SE

PASI-SE = Pace Analytical Services - SE Kansas

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### ANALYTICAL RESULTS

Project: CITY CORPORATION, L246-056825

Pace Project No.: 60348941

<b>Sample: OUTFALL 001</b>		<b>Lab ID: 60348941001</b>	Collected: 09/21/20 06:48	Received: 09/22/20 07:30	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
<b>Chronic Toxicity</b>		Analytical Method: EPA 821/R-02/013 Pace Analytical Services - SE Kansas						
Toxicity, Chronic	<b>Complete</b>		1.0	1		09/22/20 13:30		

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## QUALIFIERS

Project: CITY CORPORATION, L246-056825

Pace Project No.: 60348941

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: CITY CORPORATION, L246-056825

Pace Project No.: 60348941

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<b>Lab ID</b>	<b>Sample ID</b>	<b>QC Batch Method</b>	<b>QC Batch</b>	<b>Analytical Method</b>	<b>Analytical Batch</b>
60348941001	OUTFALL 001	EPA 821/R-02/013	680381		

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### REPORT OF LABORATORY ANALYSIS

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**Sample Condition Upon Receipt**

WO#: 60348941



Client Name: EEG City Corp

Courier: FedEx  UPS  VIA  Clay  PEX  ECI  Pace  Xroads  Client  Other

Tracking #: \_\_\_\_\_ Pace Shipping Label Used? Yes  No

Custody Seal on Cooler/Box Present: Yes  No  Seals intact: Yes  No

Packing Material: Bubble Wrap  Bubble Bags  Foam  None  Other

Thermometer Used: T-111 Type of Ice: Wet  Blue  None

Cooler Temperature (°C): As-read 2.8 Corr. Factor -1.2 Corrected 1.6

Date and initials of person examining contents: TH  
9/22/20 7:30

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> x/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> x/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: Jamie Chueh Date: 9/22/20





REFERENCE #60348941

**CHRONIC TOXICITY TEST FOR  
CITY CORPORATION**

PERMIT # AR 0021768  
AFIN # 58-00105

PERFORMED ON:

Pimephales promelas

PREPARED FOR:

Environmental Enterprise Group Inc.  
220 North Knoxville  
Russellville, AR 72801  
479-968-6767

PREPARED BY:  
Pace Analytical Services, Inc.  
808 West McKay  
Frontenac, KS 66763  
1-620-235-0003

October 1, 2020

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## SUMMARY

A Chronic Whole Effluent Toxicity Test using the 7-day chronic fathead minnows (*Pimephales promelas*), static renewal larval survival and growth test was conducted on effluent discharge water collected at the CITY CORPORATION effluent discharge from September 21, 2020 to September 25, 2020. All the test methods followed are as listed in EPA 8100-R-02-013, "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms."

Statistically significant ( $p < 0.05$ ) mortality is determined by Dunnet's procedure using average percent survival of each test concentration versus the average survival of the controls. If significant mortality occurs, median lethal concentrations are calculated using effluent concentrations and their corresponding percent mortality data. The 95% confidence intervals are calculated where appropriate by the Spearman-Kärber method. Statistical analysis is accomplished by following steps in EPA 8100-R-02-013, November 2002 and by use of Toxstat version 3.4.

In minnow section of testing, it was observed that the effluent had no significant effect on the survival of the larvae at the 100% concentration. No significant mortality was observed in the other effluent concentrations after the 7-day exposure period. The No Observed Effect Concentration (NOEC) was determined to be 100% for survival. No significant reduction in growth was observed in the 100% effluent concentration. The Toxic Units is  $< 1$ . The IC<sub>25</sub> is  $> 100\%$ . The NOEC for growth in effluent was determined to be 100%. The PMSD is 19.9.

The chronic toxicity exhibited by the fathead minnows treated by the effluent sampled from September 21 to September 25 from the CITY CORPORATION effluent discharge, is acceptable as described in EPA 821-R-02-013.

## INTRODUCTION

Pace Analytical was contracted to perform this chronic toxicity test on effluent from the CITY CORPORATION effluent discharge. Chronic toxicity was measured using the Pimephales promelas at larval for survival and growth test described in EPA 8100-R-02-013, "Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms." The raw data of the study is stored at Pace Analytical Services, INC. 808 West McKay, Frontenac, KS 66763.

## TEST MATERIAL

EEG personnel collected sampling of the effluent. A sample of the effluent was delivered to Pace by CITY CORPORATION personnel on 9-22-20. Subsequent samples followed by delivery on 9-24-20, and on 9-25-20. All samples were stored at  $\leq 6^{\circ}$  Celsius. Moderately Hard Synthetic was used as the control and to make the required dilutions in the test as described in EPA 8100-R-02-013.

## TEST METHODS

Pace used EPA test method 1000.0 for conducting the Fathead Minnow, Pimephales promelas, Larval Survival and Growth Test. The tests were conducted to estimate the NOEC, and LOEC for survival and growth for this species.

The Pimephales tests were initiated on 9-22-20 and carried out until 9-29-20. The Pimephales tests were conducted in 500 ml plastic jars with 250 ml of test solution. Eight larvae were placed in each of at least 5 replicates to make a total of 40 larvae per sample concentration.

## TEST ORGANISMS

The organisms used in these tests were cultured at Pace under controlled temperature and photoperiod conditions and/or were purchased from an external supplier. Pace maintains records of all culture techniques used in producing organisms.



Dilution Water used: Moderately Hard Synthetic

**FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL**  
**(Pimephales promelas)**

DATA TABLE FOR GROWTH OF FATHEAD MINNOWS

Effluent Concentration (%)	Average Dry Weight in Milligrams in Replicate Chambers					Mean Dry Weight (mg)	CV% *
	A	B	C	D	E		
Control 0%	0.372	0.321	0.334	0.259	0.361	0.329	13.46
Dilution 1 32%	0.362	0.402	0.355	0.306	0.327	0.350	10.42
Dilution 2 42%	0.343	0.449	0.397	0.356	0.359	0.380	11.24
Dilution 3 56%	0.336	0.298	0.410	0.369	0.348	0.352	11.74
Dilution 4 75%	0.443	0.321	0.371	0.298	0.362	0.359	15.49
Dilution 5 100%	0.378	0.443	0.414	0.367	0.342	0.389	10.25

\* Coefficient of Variation = Standard Deviation X 100 / Mean

**FATHEAD MINNOW SURVIVAL**

Conc. %	Percent Survival in Replicate Chambers					Mean Percent Survival			CV %
	A	B	C	D	E	24hr	48hr	7 day	
Control 0%	100	100	100	87.5	100	100	100	97.5	4.79
Dilution 1 32%	100	100	100	100	100	100	100	100	0.00
Dilution 2 42%	100	100	100	100	100	100	100	100	0.00
Dilution 3 56%	100	87.5	100	100	100	100	100	97.5	4.79
Dilution 4 75%	100	100	100	87.5	100	100	100	97.5	4.79
Dilution 5 100%	100	100	100	100	100	100	100	100	0.00

REFERENCE #60348941

Permittee: CITY CORPORATION Effluent discharge.

**CERIODAPHNIA SURVIVAL AND REPRODUCTION**

DATA TABLE FOR CERIODAPHNIA YOUNG PRODUCTION

Replicate	Control 0%	Dilution 1 32%	Dilution 2 42%	Dilution 3 56%	Dilution 3 75%	Dilution 4 100%
1	N/A	N/A	N/A	N/A	N/A	N/A
2	N/A	N/A	N/A	N/A	N/A	N/A
3	N/A	N/A	N/A	N/A	N/A	N/A
4	N/A	N/A	N/A	N/A	N/A	N/A
5	N/A	N/A	N/A	N/A	N/A	N/A
6	N/A	N/A	N/A	N/A	N/A	N/A
7	N/A	N/A	N/A	N/A	N/A	N/A
8	N/A	N/A	N/A	N/A	N/A	N/A
9	N/A	N/A	N/A	N/A	N/A	N/A
10	N/A	N/A	N/A	N/A	N/A	N/A
Mean	N/A	N/A	N/A	N/A	N/A	N/A
SD	N/A	N/A	N/A	N/A	N/A	N/A
CV %	N/A	N/A	N/A	N/A	N/A	N/A

**CERIODAPHNIA MEAN PERCENT SURVIVAL**

Time Elapsed	Percent Effluent (%)					
	Control 0%	Dilution 1 32%	Dilution 2 42%	Dilution 3 56%	Dilution 4 75%	Dilution 5 100%
24 hrs	N/A	N/A	N/A	N/A	N/A	N/A
48 hrs	N/A	N/A	N/A	N/A	N/A	N/A
7-day	N/A	N/A	N/A	N/A	N/A	N/A
SD	N/A	N/A	N/A	N/A	N/A	N/A
CV %	N/A	N/A	N/A	N/A	N/A	N/A



**TABLE 2**  
**SUMMARY OF TEST CONDITIONS FOR THE FATHEAD MINNOW**  
**(*Pimephales promelas*) LARVAL SURVIVAL AND GROWTH TEST**

1. Test type	Static renewal
2. Temperature	25 degrees Celsius
3. Light quality	Ambient laboratory light
4. Light intensity	Ambient laboratory levels
5. Photoperiod	16 hr light, 8 hr dark
6. Test chamber size	500 ml
7. Test solution volume	250 ml
8. Renewal of test concentrations	Daily
9. Age of test organism	< 24 hours
10. No. larvae/chamber	8
11. No. replicates/concentration	5
12. No. larvae/concentration	40
13. Feeding regime	Feed 0.15 g newly hatched brine shrimp nauplii two times daily. Larvae are not fed 12 hours prior to termination of test.
14. Cleaning	Siphon daily, immediately before test solution renewal
15. Aeration	None
16. Dilution Water	Moderately Hard Synthetic
17. Effluent concentrations	0%, 32%, 42%, 56%, 75%, 100%
18. Test duration	7 days
19. Endpoints	Survival and growth
20. Test acceptability	80% or greater survival in the controls, Average dry weight in controls >0.25 mg, Coefficient of variation in the control must not exceed 40%.

**TABLE 2 (SECTION 2)**  
**BIOMONITORING CHRONIC TOXICITY REPORT**  
**FATHEAD MINNOW (Pimephales promelas)**  
**CHEMICAL PARAMETERS CHART**

Permittee: CITY CORPORATION Effluent discharge.

ANALYSTS: Pace Analytical Services, Inc.  
 Timothy Harrell  
 Mike Bollin

**TABLE 2 (SECTION 2)**  
**INITIAL WATER QUALITY**  
**EFFLUENT CONCENTRATION**

	Control	100%
PH	7.58	8.32
D.O.	8.50	8.10
Temp	25.0	25.0
Alk	58	108
Hard	90	36
Cond	336	661
Chlorine	<0.1	<0.1

- \* D.O. is reported as mg/L
- Alkalinity is reported as mg/L CaCO<sub>3</sub>
- Hardness is reported as mg/L CaCO<sub>3</sub>
- Conductance is reported as umhos
- Chlorine is reported as mg/L

REFERENCE #60348941

TEST WATER QUALITY

24-Hour Water Quality Measurements

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	7.55	7.20	24.9
32% Effluent	7.65	7.10	24.8
42% Effluent	7.78	7.00	24.8
56% Effluent	7.92	6.90	24.8
75% Effluent	8.03	6.80	24.8
100% Effluent	8.11	6.80	24.8

48-Hour Water Quality Measurements

Effluent Concentration (%)	PH	D.O. (mg/l)	Temperature (C)
0% Control	7.74	7.10	25.0
32% Effluent	7.80	7.10	24.9
42% Effluent	7.83	7.10	24.9
56% Effluent	7.86	7.00	24.9
75% Effluent	8.00	6.90	24.9
100% Effluent	8.05	6.80	24.9

FINAL WATER QUALITY

EFFLUENT CONCENTRATION

	Control	100%
pH	7.66	7.88
D.O.	7.00	6.90
Temp	25.0	25.2
Alk	60	106
Hard	94	40
Cond	388	710

- \* D.O. is reported as mg/L
- Alkalinity is reported as mg/L CaCO<sub>3</sub>
- Hardness is reported as mg/L CaCO<sub>3</sub>
- Conductance is reported as umhos

TEST VALIDITY

The Pimephales promelas control survival rate was 97.5%. The mean dry weight (growth) of the Pimephales promelas was determined at 0.329 mg/organism in the controls. The percent coefficient of variation (%CV) values for the fathead minnow control for survival and growth were 4.79 and 13.46.

REFERENCE #60348941

REFERENCE TOXICANTS

The absence of significant control mortality during this test indicated the health of the organisms and indicated that any significant mortality in the test concentrations was not due to contaminants or variations in testing conditions.

Reference toxicity testing is routinely performed by staff members in our biomonitoring - bioassay laboratory.

Start: 8/25/20 12:00 End: 9/1/20 14:30

Reference Toxicant (NaCl) Pimephales promelas

Concentration of Toxicant	Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days
10 g/l	40	4	0	0
8 g/l	40	35	26	5
6 g/l	40	39	37	24
4 g/l	40	40	40	40
2 g/l	40	40	40	39

IC25 (5.01 g/l Sodium Chloride)

Survival NOEC: 4.0 g/l

Reference Toxicant (NaCl) Ceriodaphnia Dubia

Concentration of Toxicant	Avg. # of Live Organisms/replicate			
	0 hrs	24 hrs	48 hrs	7 days
2.5 g/l	10	6	3	0
2.0 g/l	10	10	8	2
1.5 g/l	10	10	10	9
1.0 g/l	10	10	10	10
0.5 g/l	10	10	10	10

IC25 (1.22 g/l Sodium Chloride)

Survival NOEC: 1.5 g/l

Submitted By:

*Tim Harrell*

Timothy Harrell, Technical Director

60348941 EEG City Corp FATHEAD SURVIVAL  
File: 6348941A Transform: ARC SINE(SQUARE ROOT(Y))

Chi-square test for normality: actual and expected frequencies

---

INTERVAL	<-1.5	-1.5 to <-0.5	-0.5 to 0.5	>0.5 to 1.5	>1.5
EXPECTED	2.010	7.260	11.460	7.260	2.010
OBSERVED	3	0	27	0	0

---

Calculated Chi-Square goodness of fit test statistic = 38.0902  
Table Chi-Square value (alpha = 0.01) = 13.277

Data FAIL normality test. Try another transformation.

Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.

60348941 EEG City Corp FATHEAD SURVIVAL  
File: 6348941A Transform: ARC SINE(SQUARE ROOT(Y))

Shapiro - Wilk's test for normality

---

D = 0.032

W = 0.597

Critical W (P = 0.05) (n = 30) = 0.927  
Critical W (P = 0.01) (n = 30) = 0.900

---

Data FAIL normality test. Try another transformation.

Warning - The first three homogeneity tests are sensitive to non-normal data and should not be performed.

60348941 EEG City Corp FATHEAD SURVIVAL  
 File: 6348941A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	5	0.991	1.107	1.084
2	32%	5	1.107	1.107	1.107
3	42%	5	1.107	1.107	1.107
4	56%	5	0.991	1.107	1.084
5	75%	5	0.991	1.107	1.084
6	100%	5	1.107	1.107	1.107

60348941 EEG City Corp FATHEAD SURVIVAL  
 File: 6348941A Transform: ARC SINE(SQUARE ROOT(Y))

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.003	0.052	0.023	4.79
2	32%	0.000	0.000	0.000	0.00
3	42%	0.000	0.000	0.000	0.00
4	56%	0.003	0.052	0.023	4.79
5	75%	0.003	0.052	0.023	4.79
6	100%	0.000	0.000	0.000	0.00

60348941 EEG City Corp FATHEAD SURVIVAL  
 File: 6348941A Transform: ARC SINE(SQUARE ROOT(Y))

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.004	0.001	0.600
Within (Error)	24	0.032	0.001	
Total	29	0.036		

Critical F value = 2.62 (0.05,5,24)  
 Since F < Critical F FAIL TO REJECT Ho: All equal

60348941 EEG City Corp FATHEAD SURVIVAL  
 File: 6348941A Transform: ARC SINE(SQUARE ROOT(Y))

DUNNETT'S TEST - TABLE 1 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	CONTROL	1.084	0.780		
2	32%	1.107	0.800	-1.000	
3	42%	1.107	0.800	-1.000	
4	56%	1.084	0.780	0.000	
5	75%	1.084	0.780	0.000	
6	100%	1.107	0.800	-1.000	

Dunnnett table value = 2.36 (1 Tailed Value, P=0.05, df=24,5)

60348941 EEG City Corp FATHEAD SURVIVAL

File: 6348941A Transform: ARC SINE(SQUARE ROOT(Y))

DUNNETT'S TEST - TABLE 2 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CONTROL	5			
2	32%	5	0.047	6.0	-0.020
3	42%	5	0.047	6.0	-0.020
4	56%	5	0.047	6.0	0.000
5	75%	5	0.047	6.0	0.000
6	100%	5	0.047	6.0	-0.020

60348941 EEG City Corp FATHEAD GROWTH  
File: 6348941B Transform: NO TRANSFORMATION

Shapiro - Wilk's test for normality

---

D = 0.046

W = 0.977

Critical W (P = 0.05) (n = 30) = 0.927

Critical W (P = 0.01) (n = 30) = 0.900

---

Data PASS normality test at P=0.01 level. Continue analysis.

60348941 EEG City Corp FATHEAD GROWTH  
File: 6348941B Transform: NO TRANSFORMATION

---

Bartlett's test for homogeneity of variance

Calculated B1 statistic = 0.79

---

Table Chi-square value = 15.09 (alpha = 0.01, df = 5)

Table Chi-square value = 11.07 (alpha = 0.05, df = 5)

---

Data PASS B1 homogeneity test at 0.01 level. Continue analysis.



60348941 EEG City Corp FATHEAD GROWTH  
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SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	5	0.259	0.372	0.329
2	32%	5	0.306	0.402	0.350
3	42%	5	0.343	0.449	0.380
4	56%	5	0.298	0.410	0.352
5	75%	5	0.298	0.443	0.359
6	100%	5	0.342	0.443	0.389

60348941 EEG City Corp FATHEAD GROWTH  
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SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM	C.V. %
1	CONTROL	0.002	0.044	0.020	13.46
2	32%	0.001	0.037	0.016	10.42
3	42%	0.002	0.043	0.019	11.24
4	56%	0.002	0.041	0.018	11.74
5	75%	0.003	0.056	0.025	15.49
6	100%	0.002	0.040	0.018	10.25

60348941 EEG City Corp FATHEAD GROWTH  
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ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.012	0.002	1.205
Within (Error)	24	0.046	0.002	
Total	29	0.058		

Critical F value = 2.62 (0.05,5,24)  
 Since  $F < \text{Critical } F$  FAIL TO REJECT  $H_0$ : All equal

60348941 EEG City Corp FATHEAD GROWTH  
 File: 6348941B Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 1 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	CONTROL	0.329	0.329		
2	32%	0.350	0.350	-0.758	
3	42%	0.380	0.380	-1.819	
4	56%	0.352	0.352	-0.823	
5	75%	0.359	0.359	-1.068	
6	100%	0.389	0.389	-2.144	

Dunnett table value = 2.36 (1 Tailed Value, P=0.05, df=24,5)

60348941 EEG City Corp FATHEAD GROWTH  
 File: 6348941B Transform: NO TRANSFORMATION

DUNNETT'S TEST - TABLE 2 OF 2

Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CONTROL	5			
2	32%	5	0.065	19.9	-0.021
3	42%	5	0.065	19.9	-0.050
4	56%	5	0.065	19.9	-0.023
5	75%	5	0.065	19.9	-0.030
6	100%	5	0.065	19.9	-0.059

Conc. ID	1	2	3	4	5	6
Conc. Tested	0	32	42	56	75	100
Response 1	.372	.362	.343	.336	.443	.378
Response 2	.321	.402	.449	.298	.321	.443
Response 3	.334	.355	.392	.410	.371	.414
Response 4	.259	.306	.356	.369	.298	.367
Response 5	.361	.327	.359	.348	.362	.342

\*\*\* Inhibition Concentration Percentage Estimate \*\*\*

Toxicant/Effluent: 60348941 EEG City Corp  
 Test Start Date: 9/22/20 Test Ending Date: 9/29/20  
 Test Species: P promelas  
 Test Duration: 7 Days  
 DATA FILE:

Conc. ID	Number Replicates	Concentration %	Response Means	Std. Dev.	Pooled Response Means
1	5	0.000	0.329	0.044	0.360
2	5	32.000	0.350	0.037	0.360
3	5	42.000	0.380	0.043	0.360
4	5	56.000	0.352	0.041	0.360
5	5	75.000	0.359	0.056	0.360
6	5	100.000	0.389	0.040	0.360

\*\*\* No Linear Interpolation Estimate can be calculated from the input data since none of the (possibly pooled) group response means were less than 75% of the control response mean.

Environmental Enterprise Group, Inc.  
 PROVIDING CUSTOMIZED SERVICES NATIONWIDE

L 246-05 6825

Environmental Enterprise Group, Inc.  
 220 North Knoxville  
 Russellville, Arkansas 72801  
 (479) 968-6767 Fax (479) 968-1956

Company Name:		Phone #:		Requested Analysis		Laboratory Control Number		Remarks (Please note special detection limits below.)											
City Corporation		(479) 968-4989																	
Address:		Fax #:																	
P. O. Box 3186 Russellville, AR 72811-3186		(479) 968-3430																	
Project Name or Number:		Purchase Order #:																	
Sampling Personnel Signature(s): <i>Charlotta Patrick</i>		Printed: <i>CHARLOTTE PATRICK</i>																	
Sample I.D.	Date	Time	24 Hr Comp.	Cont Type		# of Containers	Method Preserved							Sample Matrix	Bio-Monitoring	Requested Analysis	Laboratory Control Number	Remarks	
				Plast.	Glass		H2SO4	HNO3	NAOH	HCL	Ice	None	Water						Soil
Outfall 001 <i>on 9/20/20 7:30 AM 9/21/20 6:45</i>			X	X		1						X						0920128	16cube
Relinquished by: <i>Charlotta Patrick</i>		Date:	Time:	Received by:		Date:	Time:												
Received by: <i>Staugner</i>		9/21/20	8:34			9/21/20	8:34												
Relinquished by: <i>Staugner</i>		Date:	Time:	Received by Laboratory:		Date:	Time:												
Comments:		9/21/20	1400	<i>Re-test Minnows Only</i>		9/22/20	7:30												





**Sample Condition Upon Receipt**

Client Name: City Corporation EEG1

Courier: FedEx  UPS  VIA  Clay  PEX  ECI  Pace  Xroads  Client  Other

Tracking #: \_\_\_\_\_ Pace Shipping Label Used? Yes  No

Custody Seal on Cooler/Box Present: Yes  No  Seals intact: Yes  No

Packing Material: Bubble Wrap  Bubble Bags  Foam  None  Other

Thermometer Used: T-111 Type of Ice: Wet Blue  None

Cooler Temperature (°C): As-read 3.4 Corr. Factor -1.2 Corrected 2.2

Date and initials of person examining contents:

EP 9/24/00 730

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> x/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> x/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_





# Sample Condition Upon Receipt

Client Name: EEG

Courier: FedEx  UPS  VIA  Clay  PEX  ECI  Pace  Xroads  Client  Other

Tracking #: \_\_\_\_\_ Pace Shipping Label Used? Yes  No

Custody Seal on Cooler/Box Present: Yes  No  Seals intact: Yes  No

Packing Material: Bubble Wrap  Bubble Bags  Foam  None  Other

Thermometer Used: T-111 Type of Ice: Wet  Blue  None

Cooler Temperature (°C): As-read 3.6 Corr. Factor -1.2 Corrected 2.4

Date and initials of person examining contents:

AB 9/25/20  
1530

Temperature should be above freezing to 6°C

Chain of Custody present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Chain of Custody relinquished:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Samples arrived within holding time:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Short Hold Time analyses (<72hr):	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Rush Turn Around Time requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Sufficient volume:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Correct containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace containers used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Unpreserved 5035A / TX1005/1006 soils frozen in 48hrs?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Filtered volume received for dissolved tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> x/A	
Sample labels match COC: Date / time / ID / analyses	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Samples contain multiple phases? Matrix:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
Containers requiring pH preservation in compliance? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH>9 Sulfide, NaOH>10 Cyanide) (Exceptions: VOA, Micro, O&G, KS TPH, OK-DRO)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	List sample IDs, volumes, lot #'s of preservative and the date/time added.
Cyanide water sample checks:		
Lead acetate strip turns dark? (Record only)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Potassium iodide test strip turns blue/purple? (Preserve)	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Trip Blank present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Headspace in VOA vials (>6mm):	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Samples from USDA Regulated Area: State:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Additional labels attached to 5035A / TX1005 vials in the field?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> x/A	

Client Notification/ Resolution: Copy COC to Client? Y / N Field Data Required? Y / N

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_ Date: \_\_\_\_\_